

**REMARKS**

After entry of this Amendment, claims 1-17 remain pending in the application. Specifically, claims 1, 2, and 7 have been amended, and claims 3-6 and 8-16 remain unchanged. New claim 17 has been added. Claims 6 and 14-16 are withdrawn by the Examiner based on a previous restriction requirement. Rejoinder of these withdrawn claims is once again respectfully requested upon allowance of a generic linking claim. No new matter has been added in this Amendment.

***Claim Amendments and Comments***

Claim 1 has been amended to further narrow the number of carbon atoms in the  $\alpha$ -olefin. As such, dependent claim 2 has been amended in a similar manner. New claim 17 has been added to claim additional embodiments of the subject application, including the specific type of siloxane employed in the method, i.e., 1,1,1,3,5,5,5-heptamethyltrisiloxane, and further narrowing the number of carbon atoms in the  $\alpha$ -olefin. Full support for these amendments can be found in original claims 1 and 2, as well as in at least paragraphs [0029] and [0030] of the subject application, as published (US 2007/0166264 A1).

Claim 7 has also been amended to correct a typographical error, where claim 7 now depends from claim 2, rather than from claim 1. This correction should address the Examiner's claim duplicate concerns in paragraph 3 of the instant Office Action. No new matter has been added in this Amendment.

***Claim Rejections – 35 USC 103(a)***

Claims 1-5 and 7-13 stand rejected under 35 USC §103 as being unpatentable over JP 2003-048813 (the '813 publication) in view of JP 2003-306550 (the '550 publication). The Applicants respectfully traverse these rejections. Specifically, in view of the

arguments herein, and further in view of the Declaration included herewith, the instant rejections are now overcome.

To support this traversal, the Applicants first direct the Examiner to the Declaration Under 37 CFR § 1.132, which is filed herewith. The Declaration has been executed by one of the inventors, Seiki Tamura, who is one highly skilled in siloxane art, including alkyl-modified siloxanes, components thereof, processes for producing alkyl-modified siloxanes, and compositions including alkyl-modified siloxanes (please see Paragraphs 2-3 of the Declaration).

Considering the clarifying impact of the Declaration, it is clear that the present invention, especially as claimed, is patentably distinguishable from the disclosure and teachings of the '813 publication and the '550 publication, either alone or even in combination. Specifically, the Applicants submit that one skilled in the art would not have been motivated to combine the teachings of the '813 publication and the '550 publication at the time of invention. In addition, the present invention presents new and unexpected results. The '813 and '550 publications are collectively referred to herein as "the publications".

With respect to the '813 publication, the Examiner contends that the '813 publication suggests step [A] of the present invention. The '813 publication teaches a cosmetic composition for hair containing an alkyl modified polydimethylsiloxane. The alkyl group of the siloxane has from 4-30 carbon atoms, and the siloxane can be a trisiloxane. The Examiner admits on page 3 of the instant Office Action that the '813 publication does not specify how its siloxane is prepared.

With respect to the '550 publication, The Examiner contends that the '550 publication suggests step [B] of the present invention. The '550 publication teaches a method of deodorizing an alkyl methyl siloxane wax. The wax has a 14-50 carbon alkyl group. The method includes a step of hydrogenation.

Based on the disclosure and teachings of the publications, the Examiner contends that it would be obvious for one skilled in the art to use the method of the '550 publication on the siloxane of the '813 publication in an effort to obtain a siloxane with reduced odor in order to arrive at the method of the present invention. The Applicants must respectfully disagree with the Examiner's assertions.

As clearly established by the Declaration included herewith, at the time of invention, one of ordinary skill in the art would not have been motivated to use the method of the '550 publication in the manner asserted by the Examiner. In addition, even if for arguments sake the Examiner has established a prima facie case of obvious, the present invention presents new and unexpected results as also evidenced by the Declaration.

As described in Paragraphs 6 and 7 of the Declaration, the present invention relates to a method of manufacturing a final product having high purity. This final product is formed by first reacting a hydrosilyl-containing polydimethylsiloxane, such as 1,1,1,3,5,5,5-heptamethyltrisiloxane, and an  $\alpha$ -olefin having 4 to 12 carbon atoms to form a crude product. The crude product is then hydrogenated, and optionally, stripped, to form the final product of "high purity", which is described in further detail immediately below.

As described in Paragraph 7 of the Declaration, "[a]fter formation, the final product is generally free of a specific, unpleasant, odor/scent and is essentially odorless altogether. The same is generally true when the final product is stored over a period of

time, or a subsequent product including the final product, such as a cosmetic composition, is stored over a period of time. One of the sources of the unpleasant odor in the crude product is residual  $\alpha$ -olefin left over from the hydrosilylation reaction which has subsequently oxidized over time. Typically, our final product includes  $\geq 98$  parts by weight of the polysiloxane (3), based on 100 parts by weight of the final product. Said another way, our final product typically has a purity of 98% or greater, which is considered “high purity”.”

With respect to the ‘550 publication, the method taught therein is directed to very specific types of siloxane waxes as established in Paragraph 9 of the Declaration. Further, prior to the present invention, it was not previously known that a similar method could be used to deodorize siloxane liquids. This is because other methods for addressing odors of siloxane liquids (or oils) already existed (please see Paragraph 10 of the Declaration). As such, there was no need to seek out “new” methods of addressing odors in siloxane liquids.

Further, as established in Paragraph 11 of the Declaration, there is no indication whatsoever that the silicone oils of the ‘813 publication even have a problematic odor. This is because the ‘813 publication fails to teach or even suggest a method of forming its silicone oils (as noted by the Examiner), such that odor may not even be present. In addition, it can be reasonably inferred that if odor was present, it would have been noted or addressed. Because of these deficiencies of the ‘813 publication, and further because of the preexisting deodorizing methods of liquids, one would not have turned to the teachings of the ‘550 publication in view of the ‘813 publication, or vice versa, at the time of invention.

As established in Paragraphs 12-14 of the Declaration, there are also drastic chemical and physical differences between the waxes and liquids of the respective publications. Specifically, the waxes and liquids are not equivalents, and the '550 publication even suggests this difference (please see Paragraph 12 of the Declaration and paragraph [0002] of the '550 publication). With respect to the waxes of the '550 publication, the method therein is for deodorizing waxes of very low purity having very large amounts of residual long-chain  $\alpha$ -olefin (e.g. 14 to 50 carbon atoms), which inherently have strong odors (please see Paragraph 13 of the Declaration; the referenced MSDS and related sheets are attached herewith as Appendix A). In contrast, as described above, the present invention employs  $\alpha$ -olefins having 4 to 12 carbon atoms.

As established in Paragraph 14 of the Declaration, siloxane liquids can have far less residual  $\alpha$ -olefin, if any at all, relative to waxes, such as those of the '550 publication. In addition, because of the physical differences in *form* between waxes and liquids, waxes more readily entrap odors such that the odors can be detected, whereas liquids typically do not. As such, there was no teaching or even a suggestion that would have motivated one skilled in the art at the time of invention to apply the method of the '550 publication to the silicone oils of the '813 publication.

Even if the Examiner remains unconvinced of the non-obviousness of the present invention based on the arguments above, the present invention presents new and unexpected results, as evidenced by Paragraphs 16-19 of the Declaration. Specifically, the Applicants of the subject application discovered at least the absence of an expected property, which is evidence of non-obviousness of the present invention (see, e.g., MPEP §706.02(a) IV.)

As established in Paragraphs 16-19 of the Declaration, even if one were to combine the teachings of the publications in the manner asserted by the Examiner, the person of ordinary skill in the art would have expected that  $\alpha$ -olefins having a broad range of carbon atoms (such as those taught in the '550 publication, e.g. 4 to 30 carbon atoms) could be easily removed from a composition by applying the method of the '550 publication, which discloses waxes having alkyl groups with 14 to 50 carbon atoms. However, as established in the Declaration, the Applicants discovered that this was not the case.

As illustrated in Paragraphs 18 and 19 of the Declaration, removability of residual hydrocarbons ( $\alpha$ -olefin or its corresponding alkane) having 12 carbon atoms is very different from removability of residual hydrocarbons having 16 carbon atoms. This was surprising to the Applicants, at the time of invention, because the residual hydrocarbon content remained high even after employing much more aggressive stripping conditions to both the crude and final products formed from a C16  $\alpha$ -olefin relative to the stripping conditions employed on the crude and final products formed from a C12  $\alpha$ -olefin. As described above, one of skill in the art would have predicted that aggressive stripping would have easily increased the purity of the final product of a C16  $\alpha$ -olefin as well; however, this was not the case. Please refer to Tables I and II in Paragraph 18 of the Declaration to better appreciate stripping and purity differences. Even if the Examiner remains unconvinced with the arguments above, the Examiner can surely appreciate that new claim 17 is both novel and non-obvious in view of the disclosure, teachings, and suggestions of the prior art, including the publications.

In view of the foregoing, and especially in view of the Declaration included herewith, the Applicants respectfully submit that claim 1, as amended, is both novel and non-obvious, in view of the disclosure, teachings, and suggestions of the prior art such that claims 1 and 17, as well as the claims that depend therefrom, are in condition for allowance. If any additional fees are necessary to respond to the outstanding Office Action, you are hereby authorized to charge such fees to Deposit Account No. 08-2789 in the name of Howard & Howard.

Respectfully submitted,

**HOWARD & HOWARD ATTORNEYS PLLC**

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